UNIVERSITAT JAUME·I

ECONOMIC AND FINANCIAL VIABILITY OF AN INVESTMENT PROJECT

Facultat de Ciències Jurídiques i Econòmiques

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AUTHOR: MERCEDES GARCÍA CONEJOS

TUTOR: VICENT ARAGÓ MANZANA

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Economic and financial viability of an investment project.

AUTHOR:

Mercedes Garcia Conejos

E-MAIL ADRESS:

al269241@uji.es

TUTOR:

Vicent Arago Manzana

E-MAIL ADRESS:

arago@uji.es

4 course of Finance and Accounting

Abstract

The work developed below talks about the economic and financial analysis of an investment project. This analysis is focused on the decision to acquire machinery, specially a washing machine for a laundry characterized as Special Employment Centre.

In the realization of this Project, a constant conversation has been held between the author of this text and the applicant company of the study. This communication has served to do a more successful adjustment in order to it following the opinion of the company.

So, the results obtained from the analysis of this acquisition are developed in the following pages and they have worked to give a solution to the company and to analyse the impact of buying the washing machine.

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ECONOMIC AND FINANCIAL VIABILITY OF AN INVESTMENT PROJECT.

1. Introduction.

The objective of this work is to do a project of economic and financial viability for a company made by a NGO, this is a non-profit institution that does not depend on government and carries out activities of social interest. This company is focused on people with mental diseases, having as a preference the integration of them in the labour world. Their intention is to make them observe that it is very important for these people to have a work, and this is possible with little help and effort. They need to have the same opportunities than the people without diseases. This company is a laundry, with the aim that only work people with mental diseases. At the beginning of its functioning, a company makes them a very optimistic economic and financial project, without having in mind that the reality is very different than this project showed. This company is called "Special Employment Centre" because of the function that it does. For this reason, it is very important to receive economic help. The company presented the project in the bank, which worked to inject money to companies with this characteristics, to access to that economic help, but the lack of realism made that it has not received any help. This problem provoked a handicap at the time it started its activity.

With the pass of time, the company has a bad situation with a lot of loses, and it needs to search a solution to be able to move onwards with its activity and does not have the obligation to close it because it was very difficult to begin and, moreover, it is a social help to the society. Then, after this information has been given, I am going to make a new project for economic and financial viability illustrating different solutions to the problems that the company actually has. Some solutions can be a business transfer to other owner, the grant of a credit, etc. In addition, I am going to try to find a solution to the first project made, in a more realist and credible to the eyes of some natural or legal person interested in this information.

This work is composed of two parts: the theoretical and the empirical part. Initially, I will comment theoretically, by a brief way, the most important aspects to take into account in this project, such as NPV and IRR, the Net Cash Flows, the discount rate and the approaches most commonly used to try to determine it. Once we understand these concepts, in the second part I will apply the concepts explained in the theoretical part and I will do an analysis of scenarios too, with different possibilities. Moreover, I will realize a sensitivity analysis on prices and costs of the company caused by changes on

the market and on the environment. Within this empirical part I also perform a financial planning where I will consider the most appropriate financing method for the company.

Personally, the aim of this project is to reach a good conclusion about this company and to provide assistance to this company, since its objective is to help people with disabilities. The company does all these arrangements without any economic interest of them.

The objective of this work, in relation to academics, is to apply the selection criteria that it will be explained later to the real life. With this application, the goal is to observe the difficulty of applying the criteria learned, as there is a high risk caused by the difficulty of predicting future results. This creates uncertainties in applying the data predicted to the practice.

To achieve the objectives set in this work, I have started to understand correctly and theoretically the different important and necessary concepts to resolve the problems that the company actually has. Later, I have been to the company to receive information from different numerical data necessary for carrying out the project, as well as the different past situations that the laundry has had and how it has evolved over time. This information has helped me to understand how it could advance in the future and what could be the solution so that it can expand and work better in order for the company to make a profit as quickly as possible and thus, try to find the laundry's initial objectives.

To carry out this work the most commonly used subjects are Financial Management, from the second year and Financial Management Advanced, from the third year. In addition, I also apply some methods learned in the subject Business Valuation from the third year, and different subjects as Accounting, Market and Financial Institutions, Financial Statements Analyses, Bank Management…

2. Theoretical explanation of the most essential concepts.

2.1. Net Present Value (NPV) and Internal Rate Return (IRR). Advantages and disadvantages.

The Net Present Value (NPV) is the value of an investment as the sum of the updated of net cash flows to the initial moment with a discount rate, represented by “k”. In other words, the difference between the present value of the receipts and payments of a project.

- If the NPV is positive (NPV>0), it indicates that it will recover the equity invested. That is, to obtain a net benefit in absolute terms equal to the amount of the NPV. In this case the investment is accepted.
- If the NPV is negative (NPV<0), the company would have net loses equal to the NPV value. If this happened, the project would be rejected.
- If the NPV is null (NPV=0), the company wouldn’t mind the project, due to the fact that the Company wouldn’t obtain nor benefits, neither loses. The company would reject the project because, generally, the companies don’t want to invest equity in a project without results.

$$VAN = -A + \frac{Q_1}{(1+k)} + \frac{Q_2}{(1+k)^2} + \cdots + \frac{Q_n}{(1+k)^n} = -A + \sum_{j=1}^{n} \frac{Q_j}{(1+k)^j}$$

The Internal Rate of Return (IRR) refers to a discount rate, represented by “r”, which makes the NPV value voided. This means, the rate that equals the present value of the receipts and payments.

In order to accept or reject a project it has to be compares the relative gross profit for the monetary unit invested “r”, with the weighted average cost of capital of the company “k”.

- If r>k, the project is accepted.
- If r<k, the project is rejected.
- If r=k, the project is rejected.

$$TIR = r \rightarrow -A + \frac{Q_1}{(1+r)} + \frac{Q_2}{(1+r)^2} + \cdots + \frac{Q_n}{(1+r)^n} = -A + \sum_{j=1}^{n} \frac{Q_j}{(1+r)^j} = 0$$

The Internal Rate Return (IRR) of the project is the discount rate that makes the NPV value equal to zero.

On the one hand, if the opportunity cost of capital is less than the profitability rate of the project, the NPV would be positive. On the other hand, if the cost of capital is more than

the profitability rate of the project, the NPV will be negative. In this way, the criteria of profitability rate and the NPV are equivalents.

We obtain the conclusion that the criterion of IRR offers the same result as the NPV, because of the fact that the NPV of a project decreases slowly as the discount rate grows.

At this time, almost all large companies calculate the NPV of investment projects, but when managers take investment decisions they usually take into account other criteria too. It is customary to examine their recovery period and IRR. The payback method is only a slightly accurate index of the value of investments, on the other hand, if the IRR is used properly, it leads to make the same decisions as the NPV.

It is also true that there are many companies prefer using IRR than NPV. Many experts believe it is wrong to behave like that because if properly used, both approaches lead to the same decision, but the IRR has several flaws that can harm those without caution (see Brealey, Myers, Marcus, Mateos (2010) *Finanzas Corporativas* pp.220-223):

1. **¿Lend or borrow?** It is important to difference the meaning of IRR to these concepts, as usually, when money is lent, people want a high IRR, but, on the other hand, when it is borrowed people require a reduced IRR. Keeping in mind that, in the second case, the NPV acts contrary, namely NPV increases as the interest rate increases too. Keep in mind that in the second case the NPV acting contrary, i.e., the NPV increases as the interest rate when NPV normal reaction is to increase with decreasing the interest rate and vice versa. So in this case, you cannot trust this criterion.

2. **Multiple rate of return.** This occurs when there are multiple changes of sign of the Net Cash Flows, there may be many IRR as sign changes occur. Therefore, in this case, the IRR criteria does not work for this type of project.

3. **Mutually exclusive projects.** In this case, the IRR tends to benefit wrongly the proposal that has a faster and more profitable recovery period, which has a lower NPV. It is advisable not to rely on this criteria, and base on NPC criteria.

4. **Mutually exclusive projects with different pay-outs.** In this case, the IRR favours wrongly small projects with high rates of profitability but with low NPV.

It is clear that the NPV is a positive criterion, considering that it is thought to indicate in an investment grows the value of a company and how much it does it. There exists a situation where the NPV does not offer a good judgment, when the company is adhered to rationing of the equity. In this case, it can have several projects with positive NPV, and

the company should classify the projects according to profitability rate, this is, the NPV per dollar invested.

Among the managers, the analysis of discounted cash flows is, in fact, the dominant instrument for evaluating projects. The 75% of the companies (see Graham y Harvey 2001-2002) always or almost always use both NPV and IRR to evaluate projects. The predominance of these two indexes is even greater in large companies. Despite the clear advantages of NPV, companies apply other criteria for evaluating projects. For example, more than half of them always or almost always calculates the payback method. About 12% of companies calculates routinely the profitability rate. Using these criteria of inferior quality is perhaps because the managers want to have a simple way to establish the profitability of the projects, even if they have some flaws (see Graham y Harvey 2001-2002).

2.2. Problems in the practical application of the calculation of Net Cash Flows.

The estimate of Net Cash Flows is fundamental for companies that make new investment projects. We can define the NCF as the difference between current receipts and payments of a project at a given point in time. In addition, the NCF is an important indicator to obtain liquidity of the company as well as a suits method to study the feasibility of the projects.

In this case, we are going to focus on the NCF used for investment projects, explaining the difficulties that are obtained when estimating themselves, and what are the main issues that affect their value (see Iborra, Dasí, Dolz, Ferrer (2014) *Fundamento de dirección de empresas* pp. 366-367).

In order to make future estimations of the NCF and observe whether a project is viable or not, we need to know:

- What the situation of the company is currently, and the evolution of other projects and the historical evolution of it.
- To assess the general environment that affects the company, focusing especially on the economic aspects which are those in which the company cannot influence, such as GDP, interest rate, inflation, etc.
- In addition, it must be clear which are the variables that affect the calculation of NCF, such as sales, purchases, expenses incurred in the new project…and observe what effect has a variation of these on the estimation of the NCF.

The estimate of NCF is based on predicting payments and receipts relates to a project or idea for future business. The most existing difficulty when making these estimations is making predictions as they are very subjective. It is clear that nobody really knows what will happen in the future with certainly, what will cause to be impossible to obtain the correct amount with complete accuracy. This lack of precision can lead to overestimations and underestimations and the later can lead to a rejection of a project that can be profitable and vice versa.

There are different factors which affect the calculation of the NCF and they can generate an error in themselves, such as the following (see http://www.ehow.com/info_8531723_problems-cash-flow-estimation.html):

1. **Inflation.** Consider inflation or not in the calculation of NCF is a very important point, because when these are actually affected by inflation, the fact of not considering it

could cause a prediction of no real NCF, since the money would be worth less than what it is really reflected in the predictions.

There are three types of investments:

- Investments in which the NCF are independents of the effect of the inflation. This usually occurs in the case of what the NCF agreed in the contract, so the inflation would not make them differ.
- When the value of the NCF is affected by inflation. This is the more real case. Normally, the productive investments are affected by the effect of inflation, as it happens to the vast majority.
- The case where inflation affects different by the current payments and receipts. The company should attempt, in times of inflation, spending those inputs that are less affected by the rising prices so that the elasticity of receipts in relation to the general price index would be greater than the elasticity of the receipts, causing a positive impact of the inflation on investment.

2. **The taxes.** They have to be into account in the calculation of NCF because the tax that taxes the benefit supposes a payment to the company.
3. **The amortization.** This item is a cost for the company but it does not suppose any payment for it. For this reason, the amortization is important only to calculate the tax base, and indirectly to calculate the tax.
4. **The opportunity cost.** The opportunity cost that affects to the estimation of the NCF are referred to the use of equity, work and team in a project respect other. This difficult in great measure the calculation of NCF because the companies also should think the possible NCF of a big variety of different projects.
5. **Cannibalization.** It refers to the impact that has the realization of new projects in the existent lines in the business. It is true that to determine a negative impact in the existent projects caused by the creation of new projects is difficult, but it is an important factor to take into account in order to calculate the NCF.

There exist different methods of estimation of NCF to make the calculi of NCF to be more real. The existence of these methods is produced by a lot of factors that affect the estimation of NCF. The most used method by the companies is called **analysis of scenarios**, where the companies project three different scenarios, for example, optimistic, probable and pessimistic. This held a great amount of NCF estimations and it helps the companies to reduce the uncertainty related to the calculation of NCF.

2.3. Different types of discount rates and problems in its calculation. The CAPM as the best way to calculation it.

Mascareñas (2001) exposes that people and companies are continuously deciding there to invest their income with only objective: they want to obtain the major profitability with the lower risk. They need to determine which assets are interesting to buy and which are not, in other words, which are more profitable and which less with the same risk are. For this reason, the investors need a reference point that allow them to determine when an investment project generates a higher profitability then this reference point and when not. This reference point is called **required yield rate**, which we could define as the minimum yield that an investor requires to do a particular investment.

If we suppose that we know the preferences of each person and the conditions of the market where we move, each investor will establish an expected yield tax to each asset that he pretends to acquire. Understanding as an expected yield which the investor expects to receive in exchange of risking to realise an investment. It supposes that if the expected yield of an asset is lower than the yield rate required to invest in the same, it will reject its acquisition, meanwhile if it expects that some assets have a higher yield that the required, it will grow the richness of the investor.

To determine the value of the yield tax there are different methods. I am going to highlight three of them:

a) The Weighted Average Cost of Capital (WACC).

b) The Weighted Average Cost of Capital (WACC) with a risk premium. This method has some difficulties:

   - The market tax has included a risk factor.
   - The subjective correction factors tend to punish the projects, because they arbitrarily add a major cost opportunity.
   - Moreover, the determination of risk premium is very subjective because of:
     - The actual situation makes it very difficult to know what will happen.
     - Historical dates. They have varied a lot the last time and they are not trustful.

c) CAPM.

Regarding to **WACC**, we can talk that it is a financial measure that wants to take globally in only one percentage cipher the cost of different financial sources that a company will be using to cover a specific project. This is a weighted average of the debt cost and the profitability demanded to the shares.

The WACC is the profitability tax that the company expects to obtain of its medium risk investments with the objective of offering the adequate expected profitability for all the investors. In other words, the WACC constitutes an adequate discount rate in projects equal to the activity of the company. Most of the times, it will be used as a reference discount rate rising it in the high risk projects and lowering it to unusually secures.

The necessity of using of this method is justified because the Net Cash Flows calculated are financed by their own equity (own funds or shares) as with equity of third persons (liabilities or debts). The WACC allows to weight (weighted average) the cost of both financing sources, shares and debts by the volume of each one in the total of the shares.

In this method is supposed as in a complete trustful environment. Although, this situation is not adjusted to the reality because in all financial decisions risk should be incorporated. This disadvantage makes that the method can cause us a lot of problems when we use it as a discount rate. The use of WACC will not be a completely real situation and we could have a bad decision provoking that the company does not have the expected result.

Regarding **CAPM**, Damodaran (2013) explains that it is one of the most used methods by financial analysts. This model has as an objective to determine a required yield tax to justify the addition of an asset in a good diversified portfolio, taking into account the not diversifiable risk of that asset.

The CAPM was introduced in 1964 by John Lintner, Jack Treynor, William Sharpe and Jan Mossin. The model started with the idea that an investment has two types of risk:

- Systematic risk: It refers to the market risks that cannot be diversified. For example, interest rate, the wars, etc.
- Non-systematic risk or specific risk: This is the risk of the individual shares and it will be diversified as the investor grow the number of shares of his portfolio. It represents the component of yield of a share that is not correlated with the general movement of the market.

Given the systematic risk could not be eliminated through diversification, the CAPM was raised away to measure it.

The formula is the following:

$$E[R_i] = R_f + E\left[\beta_M - R_f\right] \times \beta_i$$

Where:

$E[R_i]$ represents the expected profitability of the investment.

R_f the profitability of free risk asset.

$(\beta_M - R_f)$ represents the market risk premium.

β_i is the beta of the equation.

The CAPM takes into account the undiversifiable risks or beta of the market, besides the expected profitability of a free risk asset.

The following assumptions are applied to the base theory:

- All the investors have aversion to the risk.
- The investors have the same temporal horizon.
- There are unlimited equity to borrow to the free risk rate.
- The investments can be divided in unlimited parts and measures.
- There are not taxes, nor inflation, neither transaction costs.

Despite its empiric importance, the CAPM model is fixed to several assumptions that difficult its empiric validity. For this reason, it should be verified if the CAPM model is valid to particular examined cases. Other inconvenient can be:

- Different investors have different profitability and risk expectative. This supposes that the homogeneous expectative is not correct, then this presumption of the CAPM is false.

- The model assumes that with an expected yield tax, the investors will prefer lower risk, in other words, with a certain of risk, it will prefer the higher yield associated to this risk. It does not study that there are investors who prefer to accept lower yields to higher risks, that means, investors that pay to assume risks.

- The model says that all the investors have access to the same information, and they agree about the risk and the expected yield to all the assets, and is very far from the real situation.

- In the model it is assumed that the market portfolio is efficient. This affirmation does not always happen in real life.

Prestigious authors, as Damodaran (2013), question the validity of the beta companies, affirming the inexistence of a unique beta to all the investors. This produces that the

betas are calculated, in some cases, in relation to historic dates. This dates are not normalized, that means, they can use different temporal horizon to its calculation and using at the same time different profitabilities, and equally it depends from the stock market index taking it as a reference in the calculate too. As Damodaran says (2013), the beta use calculated with historical dates in a valuation, without doing a previous exhaustive analysis of the shares and the future perspectives of the company, it is a very dangerous fact and a common source of errors.

In addition of the beta calculation, the free risk rate is a big problem too because, generally people use the state bonds, but ¿Is this correct? They use the state bonds because it is said that a State in the worst case only should put into function the printing money machine to pay its debt. However, there have been cases in history where the country does not activate the printing money machine, and neither pays. Then, we do not know really what the free risk rate is, it is understood the rate that offers the German bonds as the closest to this rate, although the German bonds are under the same rate.

3. Study of the viability of the investment.

As I have explained earlier, the situation of the company is very precarious, so the purpose of it is to get out of this situation and to continue with its operation. To this end, the company is considering the possibility of acquire a new machinery with the intention of can serve a larger number of customers, since the scarcity of them do it impossible. Mainly, news customers will be customers with a higher turnover, and it would do that the laundry will have an increase of laundry to do that with a single washing machine would not be possible because of the demands of time they require. This would involve increasing the working hours of workers, or hire more of them part-time, in addition to the acquisition of a new washing machine.

At this point, I will analyse whether this project is viable for the company and whether it will realize the expected benefits. Moreover, we study hoy should vary certain aspects for the company to obtain benefits through a sensitivity analysis.

In the realization of the calculation and obtaining of the results only it will be take in account the receipts and payments or expenses and incomes of the investment realized, i.e., the proportional part that the company have by the investment. To this, it use the increase of each item differentiating the results obtaining after the investments and the results obtaining by the company if it carry out the investment.

By means of this study, the company will decide if realize the investment o if it should value other aspects that it had not thought until now.

3.1. Determination of discount rate and why.

To determine the discount rate I am going to use the CAPM method, since I have explained before in the theoretical part, it is the more approximated model to the reality and it shows a more realist point of view in reference to the requirement yield tax.

From this method, we find different difficulties that we need to solve. Below I am going to explain the different dates and how I obtain it.

The CAPM equation is the following:

$$E[R_i] = R_f + E[R_M - R_f] \times \beta_i$$

Where:

$E[R_i]$ represents the expected profitability of the investment.
R_f the profitability of free risk asset.
$(\beta_M\text{-}R_f)$ represents the market risk premium.
β_i is the beta of the equation.

The expected profitability of the investment is the unknown of the equation that is important to resolve it, through the obtaining the value of the dates containing in it. To this, I have consulted different opinions of professional analysts, obtaining the value. Next, I'm going to explain each value of the equation y how I have obtained it:

1. First of all, I have obtained the value of the profitability of free risk asset. To this, first I have decided which asset consider as basis to obtaining the value, since, as I have explained before, it does not exist an asset used as basis by all the analysts it is just that each analyst choose which he consider convenient.
   In this case, I have based in the State Treasury bond to 5 years. The reason of this is that, due to the current situation that we have, is the more adjusted asset to the reality. Generally, the value of the free risk asset is very near of 0%.
   So, I saw the last auction by the public treasury (30/04/2016), and the medium interest of this assets was **0,569%.** This value is adjudicated to the **free risk asset profitability**.

2. Next, it is determined the value of the expected market risk premium. In this case I have a conflict, since, as Fernandez (2009) explain, the investors, executives and lecturers do not have "homogeneous expectations", in other words, they do not have the same shares portfolio and, for this reason, they have different expected risk premiums. Therefore, with the objective that all will have the same, is necessary suppose that exist homogeneous expectations (or a representative inverse) and, with

the current consciousness about the financial markets this hypothesis is not reasonable. Thus, he writes about a possible conclusion of this risk premium. Brealey, Myers and Allen (2005) talk about it: *"From this discussion only appear a solid conclusion: not trust in nobody which say know what profitability expect the investors".*

For this reason, Fernandez do surveys to different types of persons, as can be specialised professors in the subject, business owners, financial analysts, etc. asking them what market risk premium expect with the current situation that we have actually. To it, I have based in the survey realized in 2015, where conclude that the **expected market risk premium** is around **5.9%**. This value is obtained making a study through the answers obtained in the survey.

3. The last aspect to take into account about the CAPM is the beta of the equation, so that is important attach in the company that we are studying. The laundry of this project does not be quoted in stock market, and actually, it does not exist any laundry that be quoted in it. Due to, to obtain a logic beta to this company, I have searched the beta that is used to the activities of the service area analysing the dates in Yahoo Finance.

   To can obtain a conclusive beta and more approximated to the reality of the company of the project, I have studied different articles realized by different analysts, because of a sector beta is more general and very difficult to adjust to the activity of the company. Once read the different opinions, I have chosen a **beta** with a value of **1.19**.

   The reason to choose this beta value to the company is because once studied the current situation of it, and how the company is situated in the society, I conclude that it is a company that has a higher risk that the market. This take place because exist more laundries with similar characteristics that the laundry of the study, and this lead to exist a big rivalry, and at the same time, it is not a business that has a big growth. This reasons provoke that will be difficult to the laundry obtain a big profitability.

   A variation in the beta value would suppose a change in the CAPM value too, in spite of in this studio I am going to use the beta noted before, this is a subjective aspect since the company do not be quoted in the stock market is very difficult know an identical value to it.

When the value of the different factors included in the equation of the CAPM are obtained, the result of the equation which I have explained before, is the follow:

$$E[R_i] = 0{,}569\% + E[5{,}9\%] \times 1{,}19 = 0{,}07251 = 7{,}59\%$$

Knowing the value of the expected profitability of the investment, I am going to determine the **discount rate** that I am going to use to study the investment. The value of it is **7.59%.**

3.2. Calculation of Net Cash Flows.

In this point, I am going to calculate the value of the future Net Cash Flows to the company in case that the company realizes the investment. To this, the company has delivered me the necessary dates to can calculate them. The objective of the calculation of Net Cash Flows is to obtain a general vision of the future situation for the company, and analyse if the company will obtain benefits or it will continue with losses.

The **investment** that the company want to do is purchase a washing machine with the same characteristics that the machine that it currently has. The investment that the company has to do is **13,095€**, because of the price of the washing machine that it is wanted to purchase is the same that the actual machine.

In this investment, it has been chosen a temporal horizon of 10 years, since it is the useful life of the washing machine. To become to this conclusion, we think that is important to study if the company is going to obtain benefits in the time the washing machine operates.

Below I am going to analyse what aspects of the company would be affected by the realization of this investment. The results of it have been obtained realizing a future projection of this prediction.

Billing.

Actually the company has temporary and fix customers, and particulars and companies' customers. Each one with different billings and this does that will be very difficult know exactly what the medium billing by customer is. To obtain approximately this value, I have analysed the billing obtaining in 2015 and 2016, and I have concluded that the medium billing by customer is about **60.35€** monthly.

The company has 12 customers. With this situation that the company has only with one washing machine, it is believed that the customers are going to rise since the company has had rejected a lot of customers because it had not sufficient space. In conclusion, the company believes that its customers increase approximately in **14**. In addition, the company believes that the billing is going to increase to because more of these new customers will be big companies with a lot of necessity of laundry. This situation does that the percentage of billing increases too.

Before all this studies about the customers and billing, I think that the billing could increase **90€** monthly per customer, and this supposes that the billing will be **1,080€** annual per customer.

If everything functions as it should, the company believes that the customers could increase approximately in **10%** annual, because the company will realize a client acquisition by publicity, offers, contact with different companies that it can attend, etc.

Personal expenses.

This investment in a new washing machine and the rise of customers would suppose the hire of two news part-time employees.

This will suppose an increase in the expenses to the company in, approximately, **839€ monthly**. Annually, it will be an increase of personal expenses of **10,064.81€,** taking into account the previous expenses that the company had with the two hired employees before the new investment.

Furthermore, before the 6th year, the rise of customers it is probable that will have necessary the hire of other full working day employee, that it will create an increase of the personal expenses to **10,686.72€.**

Amortization.

The purchase of the new washing machine supposes an amount of the amortization annually. Therefore, as the company does not have the exact value of the amortization of each item of property, plant and equipment I have calculated the percentage of amortization regarding of the total value of property, plant and equipment. I have obtained it as following:

$$\frac{Amortization\ of\ property, plant\ and\ equipment}{Property,\ plant\ and\ equipment} = \frac{4.783{,}24}{43.597{,}33} = 11\%$$

Once obtained this value, where we can see that the value of total amortization regards the total value of property, plant and equipment is **11%**, I can approximately obtain the value of the new amortization with the acquisition of the new washing machine.

Then, the value of the amortization will be:

$$\% \times Property, plant\ and\ equipment = 11\% \times (43.597{,}33 + 13.095) = 6.219{,}95$$

The purchase of the washing machine supposes an increase in amortization of **1,436.71€.**

Fixed costs.

The company supposes that this expenses increase in **30%** respect the expenses had before the acquisition. In conclusion, the increase of **fixed costs** will be **1,169.36€.**

Supplies.

To obtain the expected value of the supplies, I have calculated a percentage in relation with the billing perceived by the company. Once calculated this value I conclude that the supplies expenses will suppose a **50%** on the total billing.

Once analysed all the items necessary to the calculation of the Net Cash Flow, the following table shows the results obtained:

Table 1. Calculation of Net Cash Flows.

0	1	2	3	4	5	6	7	8	9	10
-13,095	-9,982	-2,691	-1,837	-897	136	651	1,840	2,378	2,971	3,623

In this table they are reflected the calculations of the Net Cash Flows realized from the predictions realized by the company.

The complete tables can be observed in the **annex 1** which is at the end of the document.

As we can observe, the company has **negative working capital** during all the years, since the current liability is higher than the current asset in all the periods. This means that the company can have solvency problems because it is financing investments that it has during a lot of years with short-term debt, as the suppliers, for example. If these suppliers left the contract that they have with you, the company could have financing problems.

In this case the company has this working capital because it does not have sufficient customers and furthermore, it has a lower value of treasury.

As the percentage of the working capital regard the net sales figure is very unreal, **-289%**, I have searched in different news of Yahoo Finance and I have obtained that the percentage that the service sector companies habitually have is **-15%**. I am going to use this percentage because it is more adjusted to the reality.

Related to the **taxes**, as the company has many loses in the majority of years, it does not pay taxes, then this value is 0 in these years. The months where the tax base will be positive, the tax will be calculated multiplying the 25% referred to the tax that has the company, per this tax base, subtracting the value to the tax base to obtain a result after taxes.

Once analysed the different dates affected by the prediction, we obtain, as we can see in the table before, a negative Net Cash Flow the first years, and the last years of the investment we obtain positive NCF.

3.3. Calculation VPN and IRR and interpretation of the results.

Net Present Value (NPV).

With the results obtained in the calculation of Net Cash Flows, I have calculated the Net Present Value (NPV), obtaining a negative value of it: **20,620.27€.**

This value means, as I have explained before in the theoretical part, that the company will have net loses equal to this value. In this situation the company should reject the project.

Internal Rate Return (IRR).

In relation to the IRR, the value obtained is **-11%.** This suppose that the project is not profitable, since a negative IRR, generally, suppose that the company reject the project. It is not necessary compare it with the discount rate used in the calculation of the VPN.

3.4. Sensitivity analysis.

In this section I am going to do a sensitivity analysis which pretends to observe how sensible is the NPV considering changes in particular variables used to the calculation of the NCF, in other words, how much changes the NPV considering the variation of one variable, maintaining the rest constant.

The aim of this sensitivity analysis is to observe how should vary this items to do the NPV equal to zero, that is, the value through which the company does not lose money and would begin to gain money. This is an important study to the company since through it the company can observe whatever need to reach the limit and, in consequence, the project become a profitable project. In addition, the company could know if it will be capable to deal this project and gain money or not.

In order to do this, I have chosen the variables that I consider more important to the company. The variables are:

- The media billing per customer.
- Minimum number of customers.
- Percentage of supplies regard the net sales.
- Total billing.

The minimum media per customer.

Realizing the sensitivity analysis of this variable I observe that, the company will need an annual billing between 1,300 and 1,500€ to has a rentable project. It needs rise the annual billing in 300€ as minimum.

Minimum number of customers.

Regarding this point, the company should start with a minimum of 17 customers the first year of the investment, finishing with 39 the last year. For this reason, the company should have approximately 6 customers more than the company expected for the realization of the investment.

Percentage of supplies regarding the net sales.

The company should reduce its supplies from a 50% of the total billing to 36% about the same. With this situation it will get the profitable project.

Total billing.

regarding to the total billing, the company will need the first year a billing of 19,000€ rising it little by little to 48,000€ the last year. The company should study the best way to become to this results and do the project profitable.

The tables of this point can see in the point of the **annex**, in the second annex.

These concepts have to be taken into account by the company, with the objective of study if the project can be realized achieving this conditions to do the project profitable.

3.5. Analysis of scenarios.

Relative to the NCF calculated before, I am going to suppose that they are independent to apply the Central Limit Theorem and do statistic inference about them.

In order to do this, I am going to realize an analysis of scenarios by a triangular distribution of the NCF, and it will be known an interval of values with three dates: a pessimist, an optimistic and a probable value.

- In the pessimistic scenario I will illustrate a situation which does not accomplish the predictions realized by the company. In this case the results will be worse than the calculated before. The company uses the results more unfavourable.
- In the probable scenario is the same that I have calculated in the point of the calculation of NCF.
- In the optimistic scenario I will illustrate the situation that would have the company if the results will be more favourable than the expected by the company. Having a perfect vision of the company.

Pessimistic scenario.

In this scenario, I am going to suppose that it does not achieve the expectative of the customers, then, the real situation changes. The customers of the company will be 9 instead of 14, and the expected increment will be 5% instead of 10%. Moreover, the medium billing will be 80 euros monthly instead of 90, and fixed expenses will increase in 30% instead of 40% that I have talked before in the calculation of NCF. With this situation, the NCF calculated by the company will be the follow:

Table 2. Analysis of scenarios. NCF of pessimistic scenario.

0	1	2	3	4	5	6	7	8	9	10
-13,095	-14,389	-6,828	-6,598	-6,357	-6,103	-6,459	-6,179	-5,885	-5,577	-5,253

In this table is illustrated the NCF by a pessimistic assumption to the company, varying those variables more relevant to it.

In this scenario, the profitability of the project still will be smaller, since it can observe that the NPV obtained with this NCF is of **-63,202.79€**. It supposes a loss more elevated than the one calculated before.

Probable scenario.

In this scenario I refer to the situation calculated in the previous point where I obtained the NCF with the predictions realized by the company.

Table 3. Analysis of scenarios. Probable scenario.

0	1	2	3	4	5	6	7	8	9	10
-13,095	-9,982	-2,691	-1,837	-897	136	651	1,840	2,378	2,971	3,623

In this table are illustrated the NCF by a probable assumption to the company, using those predictions realized by it.

Optimistic scenario.

In the optimistic scenario, I suppose that the customers will be 19 the first year and the annual increase will be 15%. In addition, the billing per customer will be 100 instead of 90 that I designated before, and fixed expenses will be a 25% more than before instead of 30% designated before. With this changes, the NCF obtained by the company will be the follow:

Table 4. Analysis of scenarios. Optimistic scenario.

0	1	2	3	4	5	6	7	8	9	10
-13,095	-4,795	2,187	3,408	5,762	7,814	9,708	12,422	15,543	19,133	23,260

In this table are illustrated an optimistic situation to the company, varying the variables that it believes more relevant improve it respect the prediction realized by the company.

In this case, the NPV obtained is **40,249.14€** and the IRR is **29%**. With this results I would conclude that the project will be profitable to the company, doing that it will have benefits. This conclusion is because the NPV is positive and the IRR is bigger than the discount rate.

The different tables of the different scenarios are in the **annex** at the end of the work, concretely in **annex 3.**

Once calculated the three scenarios, I will calculate the expectation of NCF, and in addition the expectation of NPV and the variance of NPV.

The expectation of NCF has calculated through the following formula:

$$E(Qj) = \frac{Q_j optimistic + Q_j probable + Q_j pessimistic}{3}$$

How it is a triangular distribution it supposes that the three results have the same probability of occur, for this I use this formula, offering the same importance to all the scenarios.

Once obtained the expectation of the NCF it calculates the variance of NCF as the following form:

$$\sigma^2(Q_j) = \frac{(Q_{jc} - Q_{ja})^2 - (Q_{jb} - Q_{ja})(Q_{jc} - Q_{jb})}{18}$$

Immediately it calculates the expectation of NPV as,

$$E(NPV) = E(-A) + \sum_{j=1}^{n} \frac{E(Q_j)}{(1+k)^j}$$

And the variance of NPV, that it is calculated in the following way because it supposes that NCF are independent:

$$\sigma^2(NPV) = \sigma^2(-A) + \sum_{j=1}^{n} \frac{\sigma^2(Q_j)}{(1+k)^{2j}}$$

The results obtained through exposed before, are attached in the **annex** of the end of work, in the **annex 4**.

Table 5. Calculation of expectation of NPV and the variance of NPV.

E(NPV)	-14,525
E(IRR)	0
VAR(NPV)	46,905,584
Desves(NPV)	6,849

In this table are explained the expectation of NPV and the variance of NPV obtained based on the expectation of NCF calculated before.

To calculate these data, it has been used the discount rate calculated previously, that is **7.59%.**

The expectation of NPV obtained continue negative, though less than the NPV obtained previously in the calculation of NCF. This is a positive aspect to take into account.

3.6. Behaviour in probability of NPV.

In this point, I am going to study different situations about the value that it could have the NPV. I am going to calculate whatever probabilities about the value could have it.

In this case I have chosen as probabilities the following:

- Probability of NPV more than 0.
- Probability of NPV less than 0.
- Probability of NPV more than 5,000.
- Probability of NPV between 0 and 5,000.

I have used the value of 5,000 since with the investment realized by the company, it would like have a minimum benefit of 5,000.

The results obtained are the following:

Table 6. Behaviour in probability of NPV.

p(E(NPV)>0)	1.70%
p(E(NPV)<0)	98.30%
p(E(NPV)>5,000)	0.218%
p(0<E(NPV)>5,000)	1.479%

In this table is illustrated the probability of the E(NPV) obtain a values or others, depending on the necessities or objectives of the company.

Once observed the results, it can be concluded that the more probable is that the company, if it realizes the project, has with a NPV less than 0, and it will suppose a loss and, then, that the project will not be rentable. In conclusion, the company should reject the project since it will not accomplish the expectative of the company and it will not have the benefits that it would like to obtain. In the table we can see that the probability of benefits between 0 and 5,000 is also very small and this does impossible or almost impossible that this situation will be produced.

4. Financial planning.

4.1. Definition.

Before, I have focused in the study of the investment project with the objective of observing the profitability of the project with the different conclusions about it.

The financial planning has big importance to the organizations since it is an analytic tool to the decision making. Companies dedicate a lot of resources to this process.

The aim of it is to realize a financial plan where it is detailed and described the financial method of the company, in addition to realize future predictions in the different financial and accounting statements of the company. The basic aim of this planning is claim and analyse the liquidity of the company.

The final aim is to obtain the financial strategy. It expresses the financial situation of the company (financing and investment) before of an extensive and studied analysis of all the effects, so many negatives as positives, which it can do to each decision regarding the financing or investment.

In addition, we are going to study if the company has enough resources to realize this project with the activities expected by it. The planning studies different methods to avoid the liquidity problems, trading and obtaining financial sources necessaries to do the activity.

Is important that in the financing the volume of resources obtained are not excessive regarding the necessities of the company, since this provokes unused resources, and they should be designated to other activities. It causes a decrease of profitability.

In this point I am going to search the combination of financial sources that, optimal in its cost, provide an entrance of sources in the company synchronised with the exits. This is to avoid the liquidity problems, and avoid the excess of treasury.

Requirements to an effective planning:

1. Forecast.
2. Obtaining the optimal financing.
3. See the development of plan.

The planning usually different formula strategies based on different future success.

In this point it is included the capital budget. It is a process that tries to identify, develop and evaluate the investment opportunities that can be profitable to the company,

verifying if the cash flows that will generate the investment are higher than the financial flows that it is required to do the project.

A bad capital budget can generate serious consequences to the company. The investment in fixed assets with purpose of growth or renovation of technology involves significant payments. A bad decision in the investment of this assets can mean the difference between a successful company and a company with difficult to survive (see http://www.gestiopolis.com/la-planificacion-financiera).

4.2. Determination of provisional income statement and the capital budget.

In this point I am going to analyse the provisional income statement and the capital budget of the company to a period of time of three years, through it is going to study the different ways of financing and the effect of each.

To this, is necessary that the project will be profitable. I am going to use the dates regard to the customers obtained in the optimistic scenario. This situation can be seen in the **annex.**

To determine the provisional income statement and the capital budget I have based in four possible proposals of financing that the company has studied:

- Without external financing.
- Capital increase.
- Long-term French loan.
- Capital increase and long-term French loan.

In addition, as the company has a unique owner and it is non-profit body, the dividend policy is zero, and it supposes that the result will go all to reserves.

Without external financing.

In this situation suppose that the company does not have external financing, and it confronts to the investment by itself.

Income statement.

Table 7. Provisional income statement without financing.

INCOME STATEMENT				
Moment	**1**	**2**	**3**	**4**
Sales and other incomes	**20,520.00**	**23,598.00**	**27,137.70**	**31,208.36**
Operating variable costs	**20,324.81**	**21,863.81**	**23,633.66**	**25,668.99**
Operating fixed costs	**2,411.17**	**2,411.17**	**2,411.17**	**2,411.17**
Amortization	1,436.71	1,436.71	1,436.71	1,436.71
Fixed costs	974.46	974.46	974.46	974.46
Other				
EBIT	**-2,215.98**	**-676.98**	**1,092.87**	**3,128.20**
Financial income	0.00	0.00	0.00	0.00
Financial expenses	0.00	0.00	0.00	0.00
EBT	**-2,215.98**	**-676.98**	**1,092.87**	**3,128.20**
Taxes	-553.99	-169.24	273.22	782.05
EAT	**-1,661.98**	**-507.73**	**819.65**	**2,346.15**
Distribution of results				
Dividends	0.00	0.00	0.00	0.00
Reserves	-1,661.98	-507.73	819.65	2,346.15
Self-funding (Amortizations + Reserves)	**-225.28**	**928.97**	**2,256.36**	**3,782.86**

In this table is presented the results of the provisional income statement supposing that the company does not have external financing.

Capital budget.

Table 8. Capital budget without financing.

Moment	**1**	**2**	**3**	**4**
Investment budget	**18,593**	**-462**	**-531**	**-611**
Investments	13,095	0	0	0
Variation of rolling fund	5,498	-462	-531	-611
Financial amortization				
Other				
Financial budget	**-225**	**929**	**2,256**	**3,783**
Self-funding by reserves	-1,662	-508	820	2,346
Self-funding by amortizations and provisions	1,437	1,437	1,437	1,437
Disinvestments (net book value)				
Extern financing				
Other				
Surplus of the period	**-18,818**	**1,391**	**2,787**	**4,393**
Surplus acumulated	**-18,818**	**-17,428**	**-14,640**	**-10,247**

In this table we can see the capital budget supposing that the company does not have external financing.

With these results we can see that this situation is not sustainable for the company since it will have a deficit accumulated during all the years. This situation is produced because the investment realized by the company has a value higher than the financing obtained.

The company would need more financing to deal this situation.

Capital increase.

In this section, I am going to study what would happen if the company does not receive any financing.

For this company, it is possible because the only associates to the company is a non-profit company, and this does not search any benefit with this company. It only wants that the disable people have a work. This means that the company inject money without any interest.

Income statement.

Table 9. Provisional income statement with capital increase.

INCOME STATEMENT				
Moment	**1**	**2**	**3**	**4**
Sales and other incomes	**20,520.00**	**23,598.00**	**27,137.70**	**31,208.36**
Operating variable costs	**20,324.81**	**21,863.81**	**23,633.66**	**25,668.99**
Operating fixed costs	**2,411.17**	**2,411.17**	**2,411.17**	**2,411.17**
Amortization	1,436.71	1,436.71	1,436.71	1,436.71
Fixed costs	974.46	974.46	974.46	974.46
Other				
EBIT	**-2,215.98**	**-676.98**	**1,092.87**	**3,128.20**
Financial income	0.00	0.00	0.00	0.00
Financial expenses	0.00	0.00	0.00	0.00
EBT	**-2,215.98**	**-676.98**	**1,092.87**	**3,128.20**
Taxes	-553.99	-169.24	273.22	782.05
EAT	**-1,661.98**	**-507.73**	**819.65**	**2,346.15**
Distribution of results				
Dividends	0.00	0.00	0.00	0.00
Reserves	-1,661.98	-507.73	819.65	2,346.15
Self-funding (Amortizations + Reserves)	**-225.28**	**928.97**	**2,256.36**	**3,782.86**

In this table is illustrated the income statement when the company receive money through its only associated.

Capital budget.

Table 10. Capital budget with capital increase.

Moment	**1**	**2**	**3**	**4**
Investment budget	**18,593.10**	**-461.70**	**-530.95**	**-610.60**
Investments	13,095	0	0	0
Variation of rolling fund	5,498	-462	-531	-611
Financial amortization				
Other				
Financial budget	**12,869.72**	**928.97**	**2,256.36**	**3,782.86**
Self-funding by reserves	-1,661.98	-507.73	819.65	2,346.15
Self-funding by amortizations and provisions	1,436.71	1,436.71	1,436.71	1,436.71
Desinvestments (net book value)				
Extern financing	13,095.00			
Other				
Surplus of period	**-5,723.38**	**1,390.67**	**2,787.31**	**4,393.45**
Surplus acumulated	**-5,723.38**	**-4,332.71**	**-1,545.39**	**2,848.06**

This table illustrates the capital budget that would have the company if it increases its capital through its only associated.

With this results it is probable that the company will need financing to balance out the deficit accumulated of the first three years. It is necessary because the financial budget has to surpass the investment budget.

Long-term French loan.

In this case, the company has the intention to obtain a French loan, with a constant payment all years.

The characteristics will be:

- Interest: 5%.
- Investment: 13,095€.
- Useful life of loan: 10 years.

The amortization table is the following:

Table 11. Amortization table of French loan.

Year	Amortizative term	Interest	Amortization fee	Total amortization	Outstanding capital
0					13,095
1	1,696	655	1,041	1,041	12,054
2	1,696	603	1,093	2,134	10,961
3	1,696	548	1,148	3,282	9,813
4	1,696	491	1,205	4,487	8,608
5	1,696	430	1,265	5,753	7,342
6	1,696	367	1,329	7,082	6,013
7	1,696	301	1,395	8,477	4,618
8	1,696	231	1,465	9,942	3,153
9	1,696	158	1,538	11,480	1,615
10	1,696	81	1,615	13,095	0

This table shows the study of the French loan if the company will choose this option.

Income statement.

Table 12. Provisional income statement with French loan.

INCOME STATEMENT				
Moment	**1**	**2**	**3**	**4**
Sales and other incomes	**20,520.00**	**23,598.00**	**27,137.70**	**31,208.36**
Operating variable costs	**20,324.81**	**21,863.81**	**23,633.66**	**25,668.99**
Operating fixed costs	**2,411.17**	**2,411.17**	**2,411.17**	**2,411.17**
Amortization	1,436.71	1,436.71	1,436.71	1,436.71
Fixed costs	974.46	974.46	974.46	974.46
Other				
EBIT	**-2,215.98**	**-676.98**	**1,092.87**	**3,128.20**
Financial income	0.00	0.00	0.00	0.00
Financial expenses	654.75	602.69	548.04	490.64
EBT	**-2,870.73**	**-1,279.67**	**544.84**	**2,637.55**
Taxes	-717.68	-319.92	136.21	659.39
EAT	**-2,153.05**	**-959.75**	**408.63**	**1,978.17**
Distribution of results				
Dividends	0.00	0.00	0.00	0.00
Reserves	-2,153.05	-959.75	408.63	1,978.17
Self-funding (Amortizations + Reserves)	**-716.34**	**476.95**	**1,845.33**	**3,414.87**

This table presents the situation of a French loan, adding a new component as the financial expenses, regard to the interest of the amortization table that I have done before.

Capital budget.

Table 13. Capital budget with a loan.

Moment	**1**	**2**	**3**	**4**
Investment budget	**19,634.21**	**631.47**	**616.87**	**594.62**
Investments	13,095	0	0	0
Variation of rolling fund	5,498	-462	-531	-611
Financial amortization	1,041.11	1,093.17	1,147.83	1,205.22
Other				
Financial budget	**12,378.66**	**476.95**	**1,845.33**	**3,414.87**
Self-funding by reserves	-2,153.05	-959.75	408.63	1,978.17
Self-funding by amortizations and provisions	1,436.71	1,436.71	1,436.71	1,436.71
Desinvestments (net book value)				
Extern financing	13,095.00			
Other				
Surplus of period	**-7,255.55**	**-154.52**	**1,228.46**	**2,820.25**
Surplus acumulated	**-7,255.55**	**-7,410.07**	**-6,181.61**	**-3,361.36**

The table shows the deficit or surplus of each period, adding the items related to the loan as interest and financial amortization.

We can see that all year there is a deficit accumulated. For this reason, the company will need other financing to cover this deficit and that it can cover the value of the investment.

Capital increase + long-term French loan.

In this case, the company studies pay a half part of the investment increasing the capital and the other with a loan.

The amortization table is the following:

Table 14. Amortization table of loan.

Year	Amortizative term	Interest	Amortization fee	Total amortization	Outstanding capital
0					6548
1	848	327	521	521	6027
2	848	301	547	1067	5480
3	848	274	574	1641	4906
4	848	245	603	2244	4304
5	848	215	633	2876	3671
6	848	184	664	3541	3007
7	848	150	698	4238	2309
8	848	115	732	4971	1577
9	848	79	769	5740	808
10	848	40	808	6548	0

This table shows the amortization of loan with the half part of the value of the investment.

Income statement.

Table 15. Provisional income statement with increasing capital and with a loan.

INCOME STATEMENT				
Moment	**1**	**2**	**3**	**4**
Sales and other incomes	**20,520.00**	**23,598.00**	**27,137.70**	**31,208.36**
Operating variable costs	**20,324.81**	**21,863.81**	**23,633.66**	**25,668.99**
Operating fixed costs	**2,411.17**	**2,411.17**	**2,411.17**	**2,411.17**
Amortization	1,436.71	1,436.71	1,436.71	1,436.71
Fixed costs	974.46	974.46	974.46	974.46
Other				
EBIT	**-2,215.98**	**-676.98**	**1,092.87**	**3,128.20**
Financial income	0.00	0.00	0.00	0.00
Financial expenses	327.38	301.35	274.02	245.32
EBT	**-2,543.35**	**-978.33**	**818.85**	**2,882.88**
Taxes	-635.84	-244.58	204.71	720.72
EAT	**-1,907.51**	**-733.74**	**614.14**	**2,162.16**
Distribution of results				
Dividends	0.00	0.00	0.00	0.00
Reserves	-1,907.51	-733.74	614.14	2,162.16
Self-funding (Amortizations + Reserves)	**-470.81**	**702.96**	**2,050.85**	**3,598.86**

This table presents the situation if the company will obtain increase in capital and a loan at the same time to financing its investment.

Capital budget.

Table 16. Capital budget with increasing capital and loan.

Moment	**1**	**2**	**3**	**4**
Investment budget	**19,113.66**	**84.88**	**42.96**	**-7.99**
Investments	13,095	0	0	0
Variation of rolling fund	5,498	-462	-531	-611
Financial amortization	520.56	546.58	573.91	602.61
Other				
Financial budget	**12,624.19**	**702.96**	**2,050.85**	**3,598.86**
Self-funding by reserves	-1,907.51	-733.74	614.14	2,162.16
Self-funding by amortizations and provisions	1,436.71	1,436.71	1,436.71	1,436.71
Desinvestments (net book value)				
Extern financing	13,095.00			
Other				
Surplus of period	**-6,489.47**	**618.08**	**2,007.89**	**3,606.85**
Surplus acumulated	**-6,489.47**	**-5,871.39**	**-3,863.50**	**-256.65**

The table shows all dates necessary to do a capital budget in relation to the increasing of capital and the loan.

In this case, the company has a deficit accumulated all the periods. The company has problems of liquidity because, with this financing, it cannot deal to the investment.

4.3. Conclusion.

In this section I am going to resolve the problem and I will study which could be the best option for the company.

If the company wants to optimize the capital budget, the financing obtained will be directed to the investment realized for it, the most recommendable option would be the capital increase, but this option supposes some inconveniences, since this would suppose that the only associated it currently has demands some benefits or advantages.

The capital budget has negative results in all options, in other words, a deficit accumulated in the majority of periods. With this situation, the company should search a solution which could have some options.

For example, in relation to the loan, the company could go to the bank and negotiate a lack of interest in the first years, and get out of the financial payments for it and confront the investment of a form more advantageous. Other option would be to request a loan by a longer period, reducing the financing charge producing a smaller payment realized by the company.

In the case where the company does not have any financing, it is almost impossible because to compensate the deficit of all the periods, the company will need to request a loan, doing that the study will be the same that the option of increased capital and request a loan. The actual situation of the company demonstrates that it will not be capable to confront an investment as we study in this project without any type of financing.

5. Social Return on Investments.

5.1. Definition.

Currently, it is very important to analyse how the realization of a business activity affects to the social and environmental aspects, giving to the company a value added to receive assistance and permissions more easily and clearly.

The general vision that we have of the companies is that only we can know that business value through the economic and financial value of it.

A group of economists wanted to focus on this idea again, making them know that the companies not only create (or destroy) the economic and financial value, but also does the social and environmental value (see Narrillos (2013) *Medición del impacto social con el método SROI)*.

In this context, I am going to base a theory created by these economists, through a cost-benefit analysis, called **Social Return on Investments (SROI)**. They would want move the concept of social value closer to the analyst, to do that they evaluate a project not only through the viability or not viability, but also through the optimization of the social and environmental impact that it suppose.

The **Social Return on Investment (SROI)** helps to calculate the support that a business project has to the society. One of the key aspect of this theory is to delimit the interest groups (stakeholders) to whom are addressed, as they exist as a strategic part that live with the objective of obtaining benefits. The question that the companies must do is: How the conditions of life of interest groups change with the development of the business activity? Is important know how the realization of this activity affects to the interest groups who it is addressed, and how quantify it.

To quantify the impact in the society of the activity, first it has to be analysed which is the main objective of the company, and when it is good defined, it has to be obtained the ratio through which is going to be obtained a ratio to measure the social impact.

$$RATIO\ SROI = \frac{Social\ benefits}{Investment\ realized}$$

To calculate the social benefits, the company usually uses some assumptions. This supposes that the calculation of it is very subjective because it depends on the person and the company that calculates it.

To this, it would be ideal that the company had a system of tracking of the social impact. This does that will be easier to obtain a value for the social benefit.

The SROI is based in 7 important principles (see Narrillos (2013) *Introducción a la metodología SROI)*:

1. The necessity to involucrate to interest groups.
2. Understand what changes in them.
3. Value what is really important to the interest groups.
4. Include only which is essential.
5. Not more recognitions.
6. Be transparent.
7. Verify the results.

Finally, we can consider that:

- The business value does not have only economic-financial aspect, bus other aspects as can be the self-esteem, the well-being, etc. And principles.

- In addition, the SROI helps to reflex the social value that pertains to the company but it is “invisible”.

- Finally, it exceeds the measure of the purely qualitative that reflex a lot of valuation methods of social projects, to penetrate into quantitative aspects.

5.2. Practice application.

To apply the project defined in the previous point, first it would have defined the objective that the company had when it was fund, and which interest groups affect this objective. Then it is important to know how the life of these changes due to the business activity realized by the company.

The aim of the company is, as I have defined previously, to promote the integration of social and labour of the person with mental diseases through the facilitation of the access to the labour market. For this reason, the company was funded, managing a Special Employment Centre.

Once defined the objective, we can conclude that the interest groups are the mental illness, since they can change their situation offering them a job place, which surely they would not have in other type of company due to their disability. To it, their life would change, because they would change from a situation where they do not work and do not feel useful to feel that people trust them and they can work as the people without disabilities. Ultimately, they would change to feel useful to the society since they can work on their own without necessity of other help.

To calculate the ratio exactly is very difficult, since it determinates the benefit to the society due to the realization of the business project it is very subjective depending on the thought of each person that realizes the study.

In this case, to obtain the value of social benefits, I have based in the value of the satisfaction through a quantitative method of the interest groups that I have appointed previously. To this I have taken into account how would be their satisfaction once offered work to a person with a mental illness in numerical values. To calculate it I have used the salary of each work with these characteristics, and the social security.

The recruitment of the firsts workers with their social security would suppose to the company a personal cost of 839€ monthly, that annually would be 10,064.81€, and in addition the recruitment of other full day worker since the 6 year for the increase of customers, would suppose a total personal expense of 10,686.72€ taking into account the previous workers. As the investment is for 10 years, I have actualized the salary obtained in 10 years to the actual moment through the discount rate that I have calculated previously (7,59%).

Once time realized the discount I have obtained a social benefit of 70,543.85€.

$$SROI = \frac{Social\ benefits}{Investment\ realized} = \frac{70{,}543.85}{13{,}095} = 5.39€$$

This value supposes that the society obtain a benefit of 5.39€ per each euro invested by the company. The social impact of the company is high, and which mean that the company offers a benefit to the society higher than the expense that this supposes.

On the other hand, a study realized by KMPG in the Operative Program of the FSE related to the fight against the discrimination 2007-2013, co-funded by the European Social Fund, the Special Employment Centre return to the society 1.44 euro per each euro that perceive of the Public Administrations.

It is a subjective aspect, and it is almost impossible quantify exactly the real value of the contribution, and this leads that each person who realizes this study will obtain different values.

The result obtained in my study is higher that the value of the study.

In my opinion, the value this type of companies and activities has to the society depends on the function of the company and of the number of workers that the company hires, or suppliers that purchase the product, etc. It does not only depend on the variables that I refer in the previous study.

In the end, not all Special Employment Centre contribute to the society of the same way, since it also affects different variables that not all the companies share.

6. Conclusion.

In this point, I am going to express the results obtained of the realization of the investment project, and a conclusion and personal opinion about the solution that I think is the best.

During the business activity realized until today, this company does not obtain the expected results and in this moment, it has a situation of crisis which has to search a quick solution since it would have closed the company because now it has solvency problems. This produces that people with mental diseases have not the opportunity to begin in the labour market.

To it, the company has decided to study an investment project in a new washing machine so it can attend a big number of customers that it could not at the beginning of the company. When the company was fund it had to reject some customers because it could not attend them. In this investment the company also studies the hire of new workers to give the opportunity to more people.

The main objective of the company is not to obtain benefits with this service otherwise give work to people with disabilities and without losing money, that means, the company wants to be solvent to continue with this activity and offer this big opportunity.

With reference to the selection criterion to the investment project, I have used the methods of dynamic analysis, which correspond to the VPN and IRR tools. The use of this criterions allowed us know the results of an investment, when the current values always will be reasonable as it is possible.

To the application of the VPN, I have established a discount rate or cost of capital, obtained through the CAPM method. This tax discounts the NCF obtained through the future expenses and incomes that the company expects to obtain.

Once analysed all the necessary aspects of the investment project, realising the future projection of the expenses and incomes that the company believes that it will have to deal and it will obtain, I conclude that the results are very alarming, since it is difficult hold the situation.

Assuming that the dates that the company has studied will be correct, the company would have facing a project that it is non profitable and in addition, it will provoke net losses during the useful life of the washing machine (ten years).

This is due to the investment realized initially, in spite of sufficient minor, 13,095€, is not going to be recovered during the period studies because the expected expenses of the

company are higher than the expected incomes. Therefore, the company will obtain more losses that benefits in this investment.

In order for the company to have a higher benefit than the costs, the best solution would be that it will invest in a good process of customer acquisition, with the aim of increase the customers more than it suppose, provoking an increase of the billing. With this situation, it tries to obtain more benefits than expenses to obtain benefits.

On the other hand, I have realised a study about the social impact that the company has, which means, how the existence of a Special Employment Centre affects to the society, what benefits offer and to who is directed. In this case, as I have commented previously, the principal beneficiaries of the business activity are the people with mental diseases, offering them a job so they can develop their capacities.

In relation to this study, I have used an analysis called SROI, where I have obtained a ratio to know how contribute the company to the society with an investment of it, in other words, how much the society gains when the company expends one euro. The result obtained is that each euro that the company invests, the society gains 5.39€, it means, that the benefit obtained by the society is higher than the expense realized by the company in an investment.

In conclusion, the company is not economically profitable, but regarding the social aspect the company is profitable. Once studied the different aspects of the same, the result is that although the company is not going to obtain net benefits, the benefit that it offers to the society is more significant and important. For this reason, the company should try to fit the economic aspects, doing economically profitable through of this changes.

Actually, the social aspect is very important, since there are a lot of disabled people that needs a motivation to have a normal life and not to feel excluded from the society. The labour realized by this company is more important to get this objective.

The company should go with its activity, and realize the investment reducing to the maximum the expenses and increasing the incomes so that economic aspects do not interrupt its social labour and it can go with its economic activity.

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8. Annex.

Annex 1. Calculation of Net Cash Flows.

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		14	15	17	19	20	23	25	27	30	33
Medium billing		1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €
Total billing		15,120 €	16,632 €	18,295 €	20,125 €	22,137 €	24,351 €	26,786 €	29,465 €	32,411 €	35,652 €
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Personal expenses		10,065 €	10,065 €	10,065 €	10,065 €	10,065 €	10,687 €	10,687 €	10,687 €	10,687 €	10,687 €
Supplies	50%	7,560 €	8,316 €	9,148 €	10,062 €	11,069 €	12,175 €	13,393 €	14,732 €	16,206 €	17,826 €
Fixed expenses		1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €
Benefit after taxes		**-5,111**	**-4,355**	**-3,523**	**-2,609**	**-1,602**	**-1,117**	**100**	**1,440**	**2,913**	**4,533**
Compensation of negative tax base		0	0	0	0	0	0	50	720	1,456	2,267
Benefit before compensation and after taxes		**-5,111**	**-4,355**	**-3,523**	**-2,609**	**-1,602**	**-1,117**	**50**	**720**	**1,456**	**2,267**
Taxes	25%	0	0	0	0	0	0	13	180	364	567
Net benefit		**-5,111**	**-4,355**	**-3,523**	**-2,609**	**-1,602**	**-1,117**	**38**	**540**	**1,092**	**1,700**
Amortization		1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
Fondo de maniobra	-8,576.10	-2,268	-2,495	-2,744	-3,019	-3,321	-3,653	-4,018	-4,420	-4,862	-5,348
Δworking capital	-15%	6,308	-227	-249	-274	-302	-332	-365	-402	-442	-486
Net Cash Flows	**-13,095**	**-9,982**	**-2,691**	**-1,837**	**-897**	**136**	**651**	**1,840**	**2,378**	**2,971**	**3,623**

Annex 2. Sensitivity analysis.

Medium billing per customer.

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		14	15	17	19	20	23	25	27	30	33
Medium billing		1,362 €	1,362 €	1,369 €	1,376 €	1,368 €	1,375 €	1,320 €	1,326 €	1,332 €	1,443 €
Total billing		19,070 €	20,973 €	23,188 €	25,639 €	28,040 €	31,003 €	32,739 €	36,173 €	39,970 €	47,648 €
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Personas expenses		10,065 €	10,065 €	10,065 €	10,065 €	10,065 €	10,687 €	10,687 €	10,687 €	10,687 €	10,687 €
Supplies	50%	9,535 €	10,486 €	11,594 €	12,819 €	14,020 €	15,501 €	16,370 €	18,086 €	19,985 €	23,824 €
Fixed expenses		1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €
Benefit after taxes		**- 3,136 €**	**- 2,184 €**	**- 1,077 €**	**149 €**	**1,349 €**	**2,208 €**	**3,077 €**	**4,794 €**	**6,692 €**	**10,531 €**
Taxes	25%	- €	- €	- €	37 €	337 €	552 €	769 €	1,198 €	1,673 €	2,633 €
Net benefit		**- 3,136 €**	**- 2,184 €**	**- 1,077 €**	**111 €**	**1,012 €**	**1,656 €**	**2,308 €**	**3,595 €**	**5,019 €**	**7,899 €**
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Working capital	-8,576.10	- 2,860 €	- 3,146 €	- 3,478 €	- 3,846 €	- 4,206 €	- 4,650 €	- 4,911 €	- 5,426 €	- 5,996 €	- 7,147 €
Δworking capital	-15%	5,716 €	- 285 €	- 332 €	- 368 €	- 360 €	- 444 €	- 261 €	- 515 €	- 570 €	- 1,152 €
Net Cash Flows	**-13,095**	**- 7,415 €**	**- 462 €**	**692 €**	**1,916 €**	**2,809 €**	**3,537 €**	**4,005 €**	**5,547 €**	**7,025 €**	**10,487 €**

Number of customers

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		17	20	22	24	27	29	31	34	37	39
Medium billing		1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €
Total billing		18,650 €	21,716 €	23,862 €	26,218 €	28,803 €	31,640 €	33,562 €	36,845 €	40,445 €	42,251 €
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Personal expenses		10,065 €	10,065 €	10,065 €	10,065 €	10,065 €	10,687 €	10,687 €	10,687 €	10,687 €	10,687 €
Supplies	50%	9,325 €	10,858 €	11,931 €	13,109 €	14,401 €	15,820 €	16,781 €	18,423 €	20,222 €	21,126 €
Fixed expenses		1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €
Benefit before taxes		**- 3,346 €**	**- 1,813 €**	**- 740 €**	**438 €**	**1,731 €**	**2,527 €**	**3,488 €**	**5,130 €**	**6,930 €**	**7,833 €**
Taxes	25%	- €	- €	- €	110 €	433 €	632 €	872 €	1,282 €	1,732 €	1,958 €
Net benefit		**- 3,346 €**	**- 1,813 €**	**- 740 €**	**329 €**	**1,298 €**	**1,895 €**	**2,616 €**	**3,847 €**	**5,197 €**	**5,875 €**
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Working capital	-8,576.10	- 2,797 €	- 3,257 €	- 3,579 €	- 3,933 €	- 4,320 €	- 4,746 €	- 5,034 €	- 5,527 €	- 6,067 €	- 6,338 €
Δworking capital	-15%	5,779 €	- 460 €	- 322 €	- 353 €	- 388 €	- 425 €	- 288 €	- 492 €	- 540 €	- 271 €
Net Cash Flows	**-13,095**	**- 7,688 €**	**84 €**	**1,019 €**	**2,119 €**	**3,122 €**	**3,757 €**	**4,341 €**	**5,776 €**	**7,174 €**	**7,582 €**

Percentage of supplies

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		14	15	17	19	20	23	25	27	30	33
Medium billing		1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €	1,080 €
Total billing		15,120 €	16,632 €	18,295 €	20,125 €	22,137 €	24,351 €	26,786 €	29,465 €	32,411 €	35,652 €
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Personal expenses		10,065 €	10,065 €	10,065 €	10,065 €	10,065 €	10,687 €	10,687 €	10,687 €	10,687 €	10,687 €
Supplies	36%	5,428 €	5,971 €	6,568 €	7,225 €	7,948 €	8,743 €	9,617 €	10,579 €	11,636 €	12,800 €
Fixed expenses		1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €	1,169 €
Benefit before taxes		**- 2,979 €**	**- 2,010 €**	**- 944 €**	**229 €**	**1,519 €**	**2,316 €**	**3,876 €**	**5,593 €**	**7,482 €**	**9,559 €**
Taxes	25%	- €	- €	- €	57 €	380 €	579 €	969 €	1,398 €	1,870 €	2,390 €
Net benefit		**- 2,979 €**	**- 2,010 €**	**- 944 €**	**171 €**	**1,139 €**	**1,737 €**	**2,907 €**	**4,195 €**	**5,611 €**	**7,170 €**
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Working capital	-8,576.10	- 2,268 €	- 2,495 €	- 2,744 €	- 3,019 €	- 3,321 €	- 3,653 €	- 4,018 €	- 4,420 €	- 4,862 €	- 5,348 €
Δworking capital	-15%	6,308 €	- 227 €	- 249 €	- 274 €	- 302 €	- 332 €	- 365 €	- 402 €	- 442 €	- 486 €
Net Cash Flows	**-13,095**	**- 7,851 €**	**- 347 €**	**742 €**	**1,883 €**	**2,877 €**	**3,505 €**	**4,709 €**	**6,033 €**	**7,490 €**	**9,092 €**

Total billing

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		14	15	17	19	20	23	25	27	30	33
Medium billing		1,080	1,080	1,080	1,080	1,080	1,080	1,080	1,080	1,080	1,080
Total billing		19,002	20,998	23,205	25,646	28,347	31,335	32,718	36,135	39,913	47,140
Amortization		1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
Personal expenses		10,065	10,065	10,065	10,065	10,065	10,687	10,687	10,687	10,687	10,687
Supplies	50%	9,501	10,499	11,602	12,823	14,174	15,667	16,359	18,068	19,957	23,570
Fixed expenses		1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169
Benefit before taxes		**-3,170**	**-2,172**	**-1,068**	**152**	**1,503**	**2,375**	**3,066**	**4,775**	**6,664**	**10,277**
Taxes	25%	0	0	0	38	376	594	766	1,194	1,666	2,569
Net benefit		**-3,170**	**-2,172**	**-1,068**	**114**	**1,127**	**1,781**	**2,299**	**3,581**	**4,998**	**7,708**
Amortization		1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
Working capital	-8,576.10	-2,850	-3,150	-3,481	-3,847	-4,252	-4,700	-4,908	-5,420	-5,987	-7,071
Δworking capital	-15%	5,726	-299	-331	-366	-405	-448	-207	-513	-567	-1,084
Net Cash Flows	**-13,095**	**-7,459**	**-436**	**699**	**1,917**	**2,969**	**3,666**	**3,944**	**5,531**	**7,001**	**10,229**

Annex 3. Analysis of scenarios.

Pessimistic scenario

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		9	9	10	10	11	11	12	13	13	14
Medium billing		960 €	960 €	960 €	960 €	960 €	960 €	960 €	960 €	960 €	960 €
Total billing		8,640 €	9,072 €	9,526 €	10,002 €	10,502 €	11,027 €	11,578 €	12,157 €	12,765 €	13,403 €
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Personal expenses		10,065 €	10,065 €	10,065 €	10,065 €	10,065 €	10,687 €	10,687 €	10,687 €	10,687 €	10,687 €
Supplies	50%	4,320 €	4,536 €	4,763 €	5,001 €	5,251 €	5,514 €	5,789 €	6,079 €	6,383 €	6,702 €
Fixed expenses		1,364 €	1,364 €	1,364 €	1,364 €	1,364 €	1,364 €	1,364 €	1,364 €	1,364 €	1,364 €
Benefit after taxes		**- 8,546 €**	**- 8,330 €**	**- 8,103 €**	**- 7,865 €**	**- 7,615 €**	**- 7,974 €**	**- 7,698 €**	**- 7,409 €**	**- 7,105 €**	**- 6,786 €**
Compensation of negative tax base		- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Benefit before compensation and after taxes		**- 8,546 €**	**- 8,330 €**	**- 8,103 €**	**- 7,865 €**	**- 7,615 €**	**- 7,974 €**	**- 7,698 €**	**- 7,409 €**	**- 7,105 €**	**- 6,786 €**
Taxes	25%	- €	- €	- €	- €	- €	- €	- €	- €	- €	- €
Net benefit		**- 8,546 €**	**- 8,330 €**	**- 8,103 €**	**- 7,865 €**	**- 7,615 €**	**- 7,974 €**	**- 7,698 €**	**- 7,409 €**	**- 7,105 €**	**- 6,786 €**
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Fondo de maniobra	-8,576.10	- 1,296 €	- 1,361 €	- 1,429 €	- 1,500 €	- 1,575 €	- 1,654 €	- 1,737 €	- 1,824 €	- 1,915 €	- 2,011 €
Δworking capital	-15%	7,280 €	- 65 €	- 68 €	- 71 €	- 75 €	- 79 €	- 83 €	- 87 €	- 91 €	- 96 €
Net Cash Flows	**-13,095**	**-14,389 €**	**- 6,828 €**	**- 6,598 €**	**- 6,357 €**	**- 6,103 €**	**- 6,459 €**	**- 6,179 €**	**- 5,885 €**	**- 5,577 €**	**- 5,253 €**

Probable scenario

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		14	15	17	19	20	23	25	27	30	33
Medium billing		1,080	1,080	1,080	1,080	1,080	1,080	1,080	1,080	1,080	1,080
Total billing		15,120	16,632	18,295	20,125	22,137	24,351	26,786	29,465	32,411	35,652
Amortization		1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
Personal expenses		10,065	10,065	10,065	10,065	10,065	10,687	10,687	10,687	10,687	10,687
Supplies	50%	7,560	8,316	9,148	10,062	11,069	12,175	13,393	14,732	16,206	17,826
Fixed expenses		1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169	1,169
Benefit after taxes		**-5,111**	**-4,355**	**-3,523**	**-2,609**	**-1,602**	**-1,117**	**100**	**1,440**	**2,913**	**4,533**
Compensation of negative tax base		0	0	0	0	0	0	50	720	1,456	2,267
Benefit before compensation and after taxes		**-5,111**	**-4,355**	**-3,523**	**-2,609**	**-1,602**	**-1,117**	**50**	**720**	**1,456**	**2,267**
Taxes	25%	0	0	0	0	0	0	13	180	364	567
Net benefit		**-5,111**	**-4,355**	**-3,523**	**-2,609**	**-1,602**	**-1,117**	**38**	**540**	**1,092**	**1,700**
Amortization		1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437	1,437
Fondo de maniobra	-8,576.10	-2,268	-2,495	-2,744	-3,019	-3,321	-3,653	-4,018	-4,420	-4,862	-5,348
Δworking capital	-15%	6,308	-227	-249	-274	-302	-332	-365	-402	-442	-486
Net Cash Flows	**-13,095**	**-9,982**	**-2,691**	**-1,837**	**-897**	**136**	**651**	**1,840**	**2,378**	**2,971**	**3,623**

Optimistic scenario

	0	1	2	3	4	5	6	7	8	9	10
Number of customers		19	22	25	29	33	38	44	51	58	67
Medium billing		1,200 €	1,200 €	1,200 €	1,200 €	1,200 €	1,200 €	1,200 €	1,200 €	1,200 €	1,200 €
Total billing		22,800 €	26,220 €	30,153 €	34,676 €	39,877 €	45,859 €	52,738 €	60,648 €	69,746 €	80,208 €
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Personal expenses		10,065 €	10,065 €	10,065 €	10,065 €	10,065 €	10,687 €	10,687 €	10,687 €	10,687 €	10,687 €
Supplies	50%	11,400 €	13,110 €	15,077 €	17,338 €	19,939 €	22,929 €	26,369 €	30,324 €	34,873 €	40,104 €
Fixed expenses		974 €	974 €	974 €	974 €	974 €	974 €	974 €	974 €	974 €	974 €
Benefit after taxes		**- 1,076 €**	**634 €**	**2,601 €**	**4,862 €**	**7,463 €**	**9,832 €**	**13,271 €**	**17,226 €**	**21,775 €**	**27,006 €**
Compensation of negative tax base		- €	317 €	759 €	- €	- €	- €	- €	- €	- €	- €
Benefit before compensation and after taxes		**- 1,076 €**	**317 €**	**1,842 €**	**4,862 €**	**7,463 €**	**9,832 €**	**13,271 €**	**17,226 €**	**21,775 €**	**27,006 €**
Taxes	25%	- €	79 €	460 €	1,215 €	1,866 €	2,458 €	3,318 €	4,307 €	5,444 €	6,751 €
Net benefit		**- 1,076 €**	**238 €**	**1,381 €**	**3,646 €**	**5,597 €**	**7,374 €**	**9,953 €**	**12,920 €**	**16,331 €**	**20,254 €**
Amortization		1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €	1,437 €
Fondo de maniobra	-8,576.10	- 3,420 €	- 3,933 €	- 4,523 €	- 5,201 €	- 5,982 €	- 6,879 €	- 7,911 €	- 9,097 €	- 10,462 €	- 12,031 €
Δworking capital	-15%	5,156 €	- 513 €	- 590 €	- 678 €	- 780 €	- 897 €	- 1,032 €	- 1,187 €	- 1,365 €	- 1,569 €
Net Cash Flows	**-13,095**	**- 4,795 €**	**2,187 €**	**3,408 €**	**5,762 €**	**7,814 €**	**9,708 €**	**12,422 €**	**15,543 €**	**19,133 €**	**23,260 €**

Annex 4. The expectation of Net Cash Flows.

	0	1	2	3	4	5	6	7	8	9	10
OPTIMISTIC		**-4795**	**2187**	**3408**	**5762**	**7814**	**9708**	**12422**	**15543**	**19133**	**23260**
PROBABLE	**-13095**	**-9982**	**-2691**	**-1837**	**-897**	**136**	**651**	**1840**	**2378**	**2971**	**3623**
PESSIMISTIC		**-14389**	**-6828**	**-6598**	**-6357**	**-6103**	**-6459**	**-6179**	**-5885**	**-5577**	**-5253**

	0	1	2	3	4	5	6	7	8	9	10
E(Qj)	-13,095	-9,722	-2,444	-1,676	-497	616	1,300	2,694	4,012	5,509	7,210
VAR(Qj)	0	3,843,480	3,394,447	4,174,943	6,138,895	8,098,841	10,942,154	14,507,578	19,466,158	26,245,458	35,485,155
Desves(Qj)	0	1,960	1,842	2,043	2,478	2,846	3,308	3,809	4,412	5,123	5,957